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RESEARCH ARTICLE

New data on the location of the snow leopard *Panthera uncia* (Schreber, 1775) and the stone marten *Martes foina* (Erxleben, 1777) in the Katon-Karagai State National Natural Park (Kazakhstan Altai)

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Abstract

The article provides new data on the location and distribution of the snow leopard *Panthera uncia* and the stone marten *Martes foina* in the Katon-Karagai State National Natural Park (South-Western Altai, Eastern Kazakhstan). The data were obtained using camera traps.

Keywords

Kazakhstan, Altai, Katon-Karagai National Park, snow leopard, stone marten, camera trap, Red List, IUCN, UNESCO

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Introduction

The Katon-Karagai State National Natural Park is located in the upper and middle reaches of the Bukhtarma river (south-western Altai); its area is 643,477 ha. It includes Sarymsakty, Southern Altai, Altai Tarbagatai ridges, and the southern macroslopes of the Listvyaga ridge and part of the Katunsky ridge with one of the highest points of Altai and Siberia - Mount Belukha. The Park's territory with the adjacent lands of the village administration is a UNESCO Biosphere Reserve "Katon-Karagai" and a part of the UNESCO Transboundary Biosphere Reserve "Great Altai".

Material and methods

The main object of the study was the snow leopard *Panthera uncia* (Scherber, 1775) on the territory of the Katon-Karagai National Park; along the way, the research covered such rare and endangered species as the stone marten *Martes foina* (Erxleben, 1777) and the Altai ular *Tetraogallus altaicus* (Gebler,1836). In the study, we used widely spread observation methods such as camera traps. The camera traps of Bushnell and SEELOCK were used. The a.s.l. altitude was captured with Garmin GPS. The coordinates are not listed intentionally to protect the species listed in the Red Book of the Republic of Kazakhstan.

The study with camera traps has been conducted in the Park since 2013 (Chelyshev, Gabdullina, 2018). In 2020, camera traps were installed on the Altai Tarbagatai and Sarymsakty ridges by the park staff; then, they were taken off in March and April 2021. After cameral processing of the photo and video materials, we obtained the first video of the snow leopard from the Altai Tarbagatai ridge in particular and from Kazakhstan Altai in general; we got the first photos of this animal from Sarymsakty ridge, and the first photo of the stone marten from the Park territory.

The snow leopard, or irbis *P. uncia* (Scherber, 1775), is a species included into the Red Book of the Republic of Kazakhstan, as a Category 3 - rare species, and in the Red List of the International Union for Conservation of Nature (IUCN) as VU - Vulnerable. Earlier meetings of the snow leopard and its tracks on the Sarymsakty ridge were repeatedly recorded until 1991; later snow leopard tracks were only seen here in winter 2008-2009 (Vorobyov, 2018). The latest data on the snow leopard from the territory of the Katon-Karagai SNPP was obtained in 2019 (Gabdullina, Amanbaev, 2019).

The stone marten *M. foina* (Erxleben, 1777) is included into the Red Book of the Republic of Kazakhstan - Category 3, a rare species, and in the IUCN Red List as the species of least concern (LC). The stone marten was met in the 80-90s of the XX century on the left bank of the Bukhtarma near the villages of Korobikha and Moyldy (formerly Kamenka); the last meeting of the tracks was recorded near the village of Katon-Karagai in 2014 (Vorobyov, 2018).

Results and discussion

The camera trap on the Altaysky Tarbagatay ridge was installed on November 20, 2020 by the state inspectors of the Archatinsky forestry, Manarbek Omarov, and Murat Arabaev, led by the forester of the Archatinsky forestry Zhomart Amanbaev at an altitude of 2300 meters in the Sarbet tract. After working 120 trap days, it was removed on March 20, 2021. In total, there were 243 videos on the camera trap, each 15 seconds long. The camera filmed people (setting the camera trap) - 4 (1,6%), the Altai ular *Tetraogallus altaicus* (Gebler,1836) – the species included into the Red Book of the Republic of Kazakhstan, endemic of the Altai-Sayan ecoregion - 17 (6,9%) (see Suppl. material 1: Video 1), the Alpine jackdaw *Pyrrhocorax graculus* (Linnaeus, 1766) – 5 (2%), the sable *Martes zibellina* (Linnaeus, 1758) – 2 (0,8%), the wolverine *Gulo gulo* (Linnaeus, 1758) – 5 (2%), the snow leopard *P. uncia* – 29 (11,9%), the Siberian ibex *Capra sibirica* (Pallas, 1776) – 96 videos (39,5%), the rest 85 (35,3 %) videos filmed various weather conditions (snow, wind, fog, etc.).

Of the 29 snow leopard videos, 13 were filmed in 2020, and 16 – in 2021. The first snow leopard video was filmed by the camera trap on November 30, 2020 from 8:36 to 8:38 – 4 videos (1 passage) (see Suppl. material 2: Video 2), additionally, three more passages were registered on December 13, 2020 from 11:30 to 11:31 – 3 videos (daytime passage), December 21, 2020 at 18:34 – 1 video (night shooting) and December 29, 2020 from 18:17 to 18:19 – 5 videos (night shooting).

In 2021, the first passage was on February 2, at 17:35 – 2 videos (night shooting), the last – March 8 from 6:31 to 6:34 – 8 videos, where the animal plays with straps of the camera trap and goes away (see Suppl. material 3: Video 3). Besides, there were two passages in February – 12.02 at 6:08 (1 video) and 13.02 at 19:41 and 19:42 (3 videos). Two more night passages were recorded on March 4 at 18:47 (1 video) and March 5 at 23:57 (1 video).

Thus, from November 20 to January 31 of 2020, the snow leopard passed by the camera trap four times, and in 2021 from January 1 to March 20 – 6 times.

Camera trap 2 was installed on April 22, 2020 on Sarymsakty ridge in Shogel tract at an altitude of 2560 m by the head of the Katon-Karagai National Park fauna protection and reproduction department, Erik Kasymov. Having worked 349 trap days, it was removed on April 6, 2021. The trap has made 3596 shots in total; 20 shots (0,5%) of them are people (installing and removing the camera), the birds Aves– 325 (9%), the bat Chiroptera – 3 (0,08%), the wolf *Canis lupus* Linnaeus, 1758 – 6 (0,17%), the bear *Ursus arctos* Linnaeus, 1758 – 10 (0,28%), the stone marten *M. foina* – 1 (0,03%), the sable *M. zibellina* – 10 (0,28%), lynx *Lynx lynx* (Linnaeus, 1758) – 5 (0,14%), the snow leopard *P. uncia* – 3 (0,08%), the musk deer *Moschus moschiferus* Linnaeus, 1758– 2 (0,06%), the Siberian ibex *C. sibirica* – 511 (14,2%), the squirrel *Sciurus vulgaris* Linnaeus, 1758– 25 (0,69%), the Asian chipmunk *Eutamias sibiricus* (Laxmann, 1769) – 3 (0,08%), the hare *Lepus timidus* Linnaeus, 1758 – 1 (0,03%). The rest of the shots were not identified due to the image ambiguity or they displayed weather phenomena (fog, wind, snow, etc.).

Figures 1–4. 1-3 –The unique photos of the snow leopard taken October 29, 2020 on the Sarymsakty ridge, the Katon-Karagai National Park; 4 – the night photo of stone marten taken July 1st, 2020 on the Sarymsakty ridge.

Figures 1–4. (Continued)

Thus, using a camera trap, unique shots of the snow leopard have been obtained – October 29, 2020 at 02:12 (2 shots) and 03:06 (one shot, the animal is going back) (Figures 1-3) and of the stone marten – July 1, 2020 at 23:23 (night photo) on the Sarymsakty ridge (Figure 4). These are the first photos of the snow leopard obtained on Sarymsakty ridge and the first photograph of a stone marten taken on the territory of the Katon-Karagai National Park.

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Supplementary material 1

Video 1. The Altai ular

Authors: Aliya U. Gabdullina, Zhomart B. Amanbaev, Erik T. Kasymov

Data type: video

Explanation note: Video of the Altai ular *Tetraogallus altaicus* (Gebler,1836), filmed December 1, 2020, by a camera trap on the territory of the Katon-Karagai National Park.

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Supplementary material 2

Video 2. The Snow Leopard (November 30, 2020)

Authors: Aliya U. Gabdullina, Zhomart B. Amanbaev, Erik T. Kasymov

Data type: video

Explanation note: Video of the snow leopard *Panthera uncia* (Scherber, 1775) filmed November 30, 2020, by a camera trap on the territory of the Katon-Karagai National Park.

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Link: https://doi.org/10.3897/abs.7.e69228.suppl2

Supplementary material 3

Video 2. The Snow Leopard (March 8, 2021)

Authors: Aliya U. Gabdullina, Zhomart B. Amanbaev, Erik T. Kasymov

Data type: video

Explanation note: Video of the snow leopard *Panthera uncia* (Scherber, 1775) filmed March 8, 2021, by a camera trap on the territory of the Katon-Karagai National Park. The animal plays with the straps of the camera trap and goes away.

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